

ABSTRACT OF THE DISCLOSURE

A digital watermarking technique is disclosed, in which image data are converted to frequency components through discrete wavelet transform and quantized into a set of quantized coefficients, which are then divided into a plurality of blocks. A digital watermark is embedded in the quantized coefficients by performing ON/OFF adjustment of bit information, such that the relation between natural number  $T$  and the bit information defined by  $N$  ( $N$  is an even number) significant bits  $Q_{nm}(x, y)$  of the  $m$ -th bit plane of the  $n$ -th block satisfies the ON state represented by equation (1), or the OFF state represented by equation (2), depending on whether the hash value of the  $n$ -th block is odd or even. Then the quantized coefficients are encoded to produce a code stream.